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# The Global Syndemics of Obesity, Food and Nutrition Insecurity, and Climate Change on the Double Burden of Malnutrition

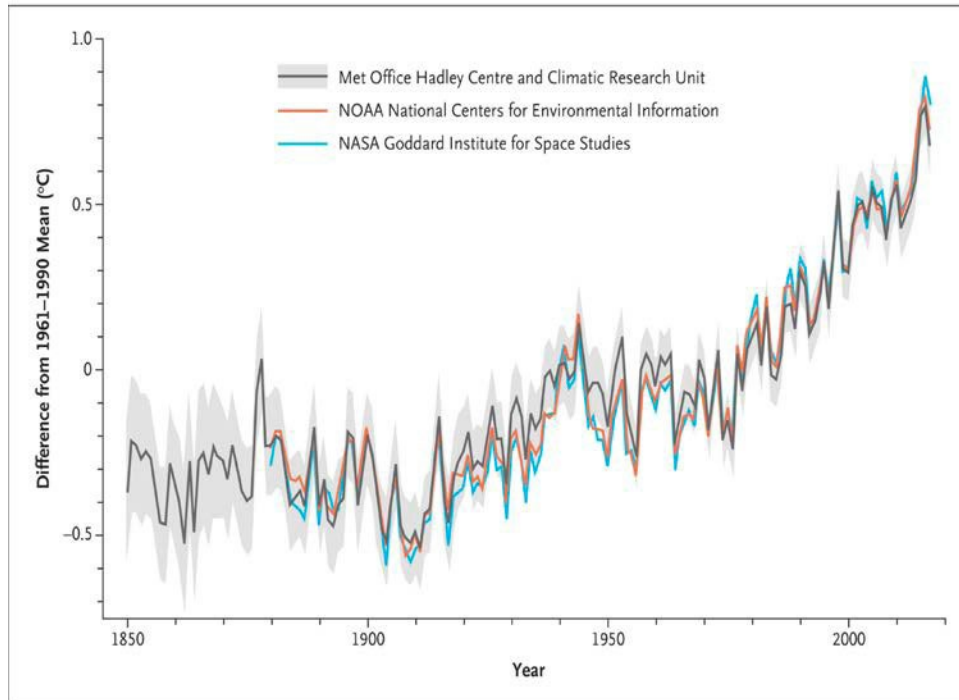
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Prevention & Wellness

# Changes in Surface Temperature 1850-2017



Haines A, Ebi K. NEJM 2019; 380:263

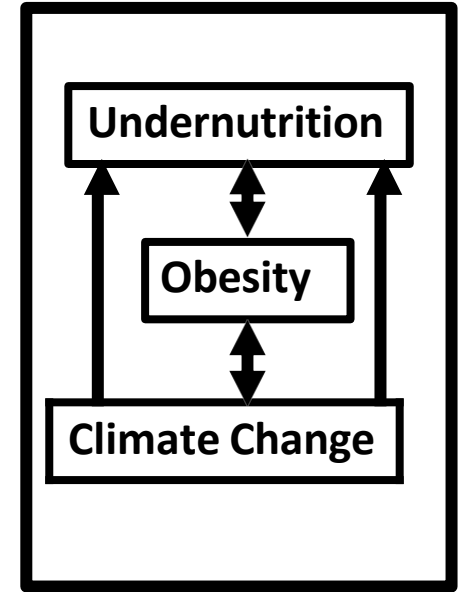
## GHG Generation

<u>Source</u>	<u>US</u>	<u>Global</u>
Food supply	10%	20-25%
Fossil fuels	30%	10%
Food waste	8%	8%

# The Global Syndemic of Obesity, Undernutrition, and Climate Change: Outcomes, Systems and Drivers



Swinburn B et al. Lancet 2019; 393:791



Outcomes

# The Global Burden of Obesity, Diabetes, Undernutrition, and Climate Change

## Obesity

2 billion people worldwide  
\$2 trillion/year

## Stunting

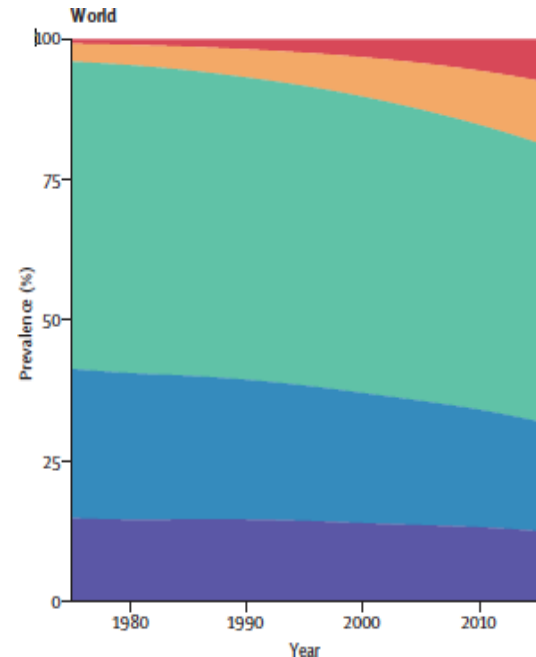
155 million children with stunting  
815 million people with chronic undernutrition

## Malnutrition in all its forms

\$3.5 trillion/year

## Climate change

5-10% world's GDP



# Syndemics

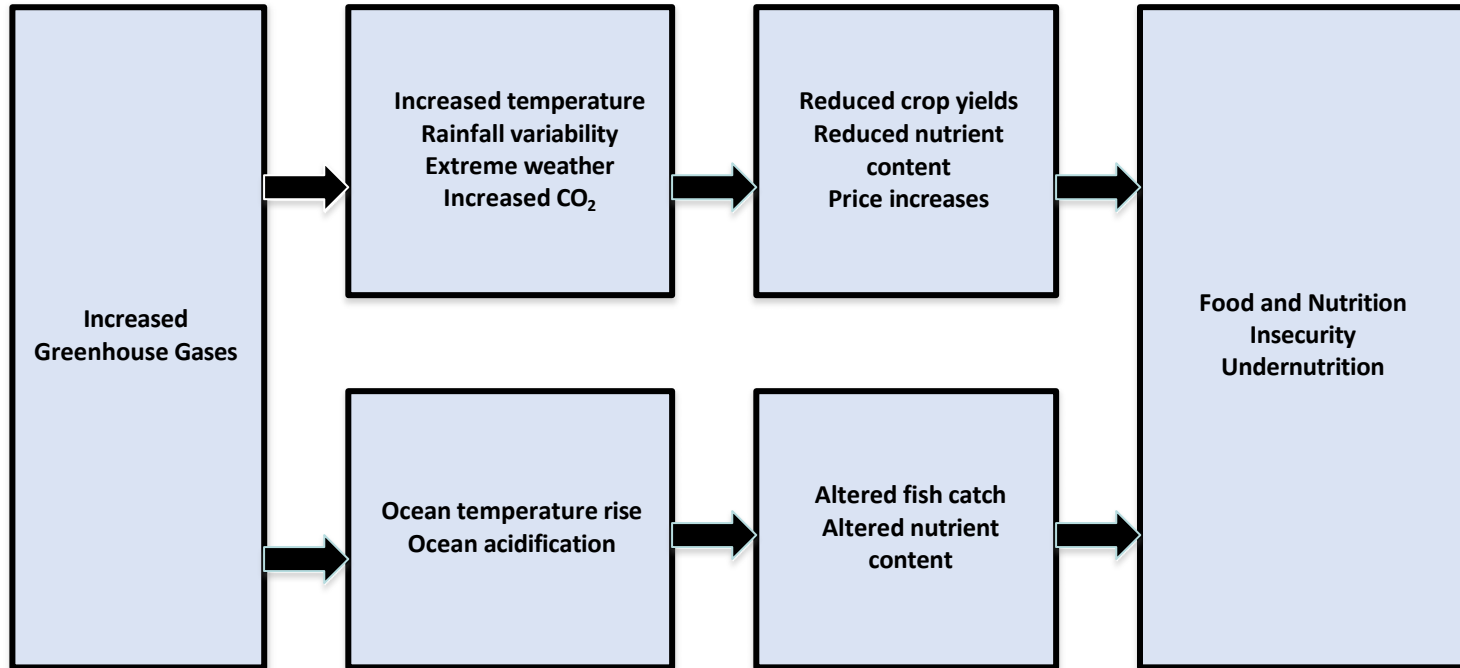
- **Clusters of diseases within a population**
- **Adverse disease-promoting interactions at both biological and biosocial levels**
- **Large scale social forces that precipitate disease clustering in the first place, often with a disparate impact on marginalized populations**

**Mendenhall E and Singer M, Curr Opinion HIV and AIDS 2020; 15:213**

# Examples of Interactions of Obesity, Undernutrition and Climate Change

- **Double burden of obesity and stunting in the same children and same population**
- **Car use, inactivity, obesity, GHG emissions, reduced yields and micronutrient content of crops, food and nutrition insecurity**
- **Cattle production, GHG emissions, meat consumption and obesity, diabetes, colon cancer and cvd**

# Impact of Climate Change on Food and Nutrition Security and Undernutrition

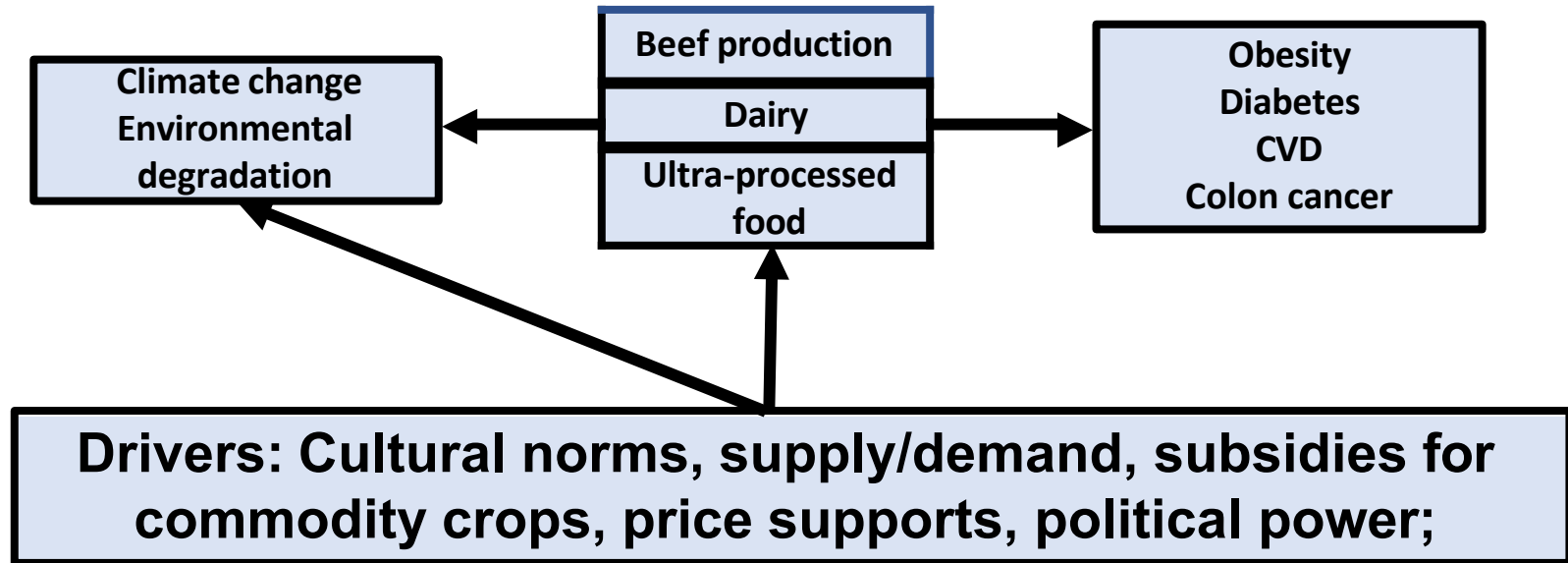


Myers SS et al. Ann Rev Public Health 2017; 38:259

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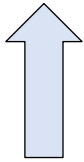
# Contributions of the Agricultural and Food Processing Systems to the Global Syndemics





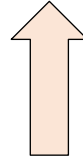
## Obesity

Healthier diets for obesity, diabetes and cancer prevention



## Undernutrition

Improved nutritional quality and food security



## Climate Change

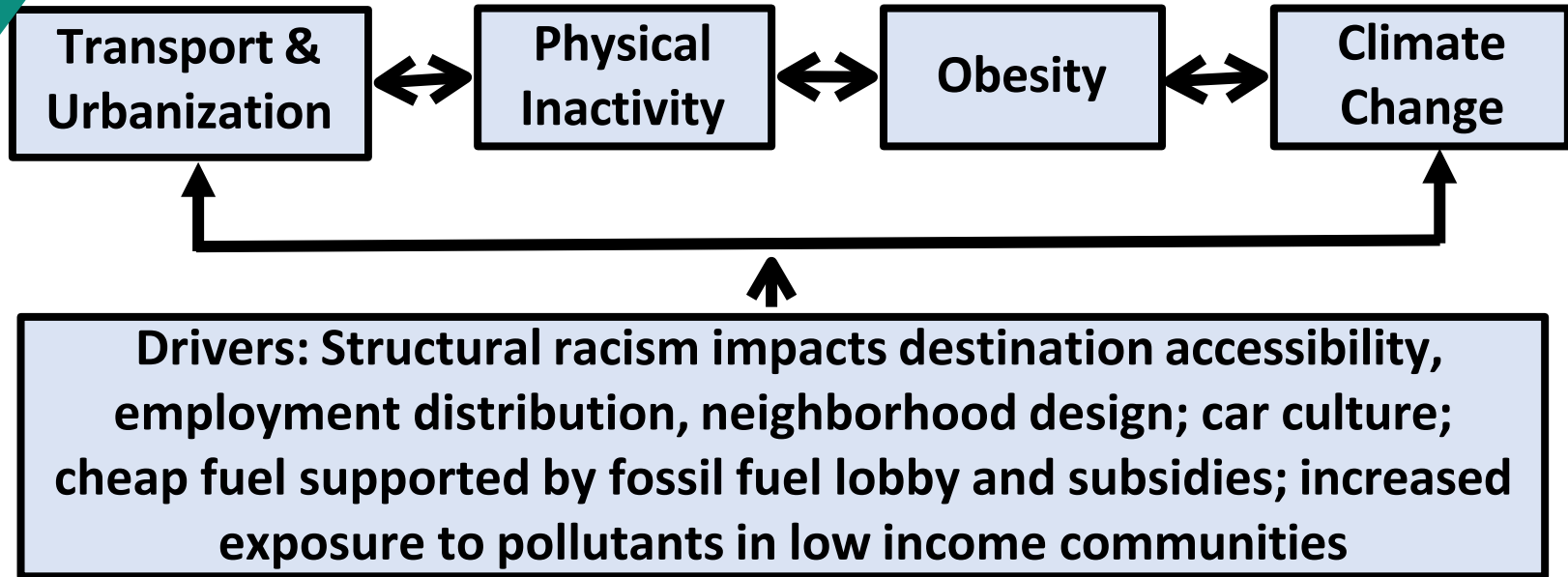
Lower GHGs from agriculture and cattle production



## Triple Duty Action

**Increase plant-based foods and reduce beef consumption:** include externalities in the costs of food; redirect subsidies for commodity crops; communication strategies to increase demand for alternatives; implement sustainable food labels and sustainable dietary guidelines

# Contributions of Urban Design, Land Use and Transport Systems to the Global Syndemics



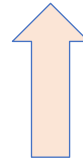
## Obesity

Increased physical activity, less sedentary time



## Undernutrition

Cheaper transport, access to healthy food and employment



## Climate Change

Lower GHGs from motorized transport



## Triple Duty Action

**Modal shifts in transport:** address structural racism – connect jobs to people; implement interconnected and mixed use neighborhoods; redesign infrastructure to support physical and public transport systems, eliminate subsidies for fossil fuel production, increase gasoline tax

# Lancet Commission's Recommendations

- Reduce poverty and inequities to reduce the impact of the Global Syndemic on the most vulnerable populations
- Fully implement human rights obligations to protect socially disadvantaged populations, especially children and women
- Reduce the impact of large commercial interests on policy development and in generating policy inertia
- Eliminate subsidies for gasoline and commodity crops
- Provide and communicate actionable strategies about products and practices that contribute to climate change
- Support and mobilize community coalitions to pressure local actions
- Establish a framework convention to increase pressure to create healthy and sustainable food systems